OTOSCOPIC EXAMINATION / HEARING PROTECTION FITTING PRACTICUM

OTOSCOPIC EXAMINATION

Definition:

The evaluation of the ear canal and tympanic membrane through the use of an otoscope;

an otoscope is a hand-held tool with a speculum

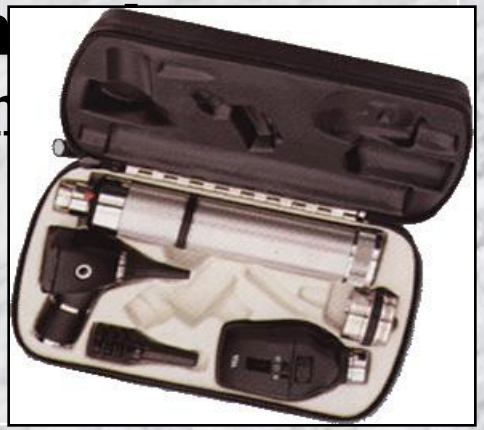
and light source to see into the ear canal

Purpose of the otoscopic exam is to ensure that the ear canals are free of any obvious problems prior to fitting hearing protection, performing tympanometry or administering hearing tests

OTOSCOPIC EXAMINATIONS (Cont.)

Otoscope Check

- Load fresh batteries, or ensure that re-chargeable batteries have full charge
- Adjust rheostat to bright white light
- Use of fiber-optic instrum
  great benefit com
  bulb-types



OTOSCOPIC EXAMINATIONS (Cont.)

Preparation for Otoscopic Exam

- Select a speculum of proper size
  - the larger the better to ensure a good view
- Lock speculum into place
- Change/discard the speculum after each patient
- Change speculum after each ear of any patient with draining ear(s)
- Observe proper hygiene, as for any bodily fluid or secretion

OTOSCOPIC EXAMINATIONS (Cont.)

Examination Method

- Grip the otoscope firmly and comfortably
- With the opposite hand, grasp the helix of the ear and gently pull the pinna upward and back to straighten the ear canal
- Gently insert the lighted otoscope past the first canal bend, resting your fingers against the patient's head; if the patient turns or moves suddenly, the otoscope will move in unison with the patient's head - avoiding injury
- After the otoscope is in place, put your eye up to the otoscope eyepiece and examine the ear canal and tympanic membrane

OTOSCOPIC EXAMINATIONS (Cont.)

Examination Method

- **Only a portion of the membrane will be visible at one time, you must move the otoscope around to obtain a composite view of the entire TM**
- **Don’t be satisfied with partial view**
- **Properly conducted, there is NO discomfort to the patient**
- **Your goal: TM is WNL or abnormal. Without additional training, you cannot diagnose/label pathology**

OTOSCOPIC EXAMINATIONS (Cont.)

What to look for:

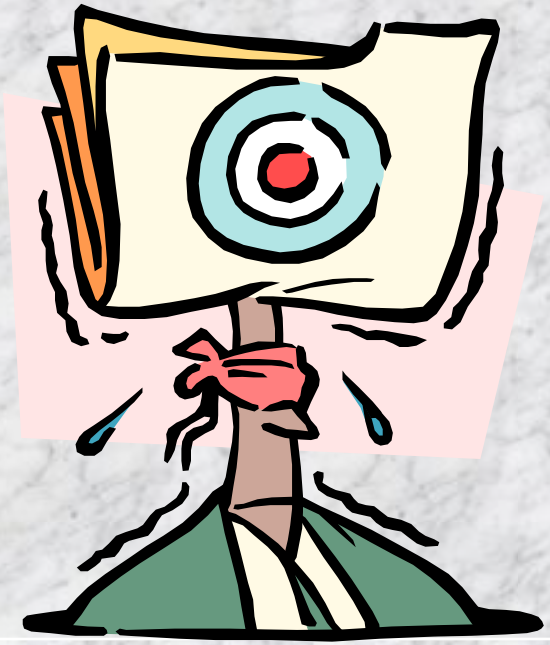
- **Canals clear and free of any obvious problems, such as discharge, impacted cerumen, masses, inflammation, foreign bodies**
  - **Remember that cerumen is normal and not a problem unless excessive**
- **Tympanic membrane landmarks**
  - **TM translucent, healthy appearance**
  - **Cone of light spreading from the center of tympanic membrane outward to the edge of the membrane**
  - **Lower end of the manubrium of the malleus attached to TM at umbo**

Normal Findings:

- **Canals clear, although some cerumen normal. However, cerumen should not be occlude more than 50% of TM**
- **Color of eardrum should be pearly gray and translucent in appearance**

Photo's courtesy of Dr. Roy F. Sullivan, Ph.D.

ABNORMAL FINDINGS: EAR CANAL



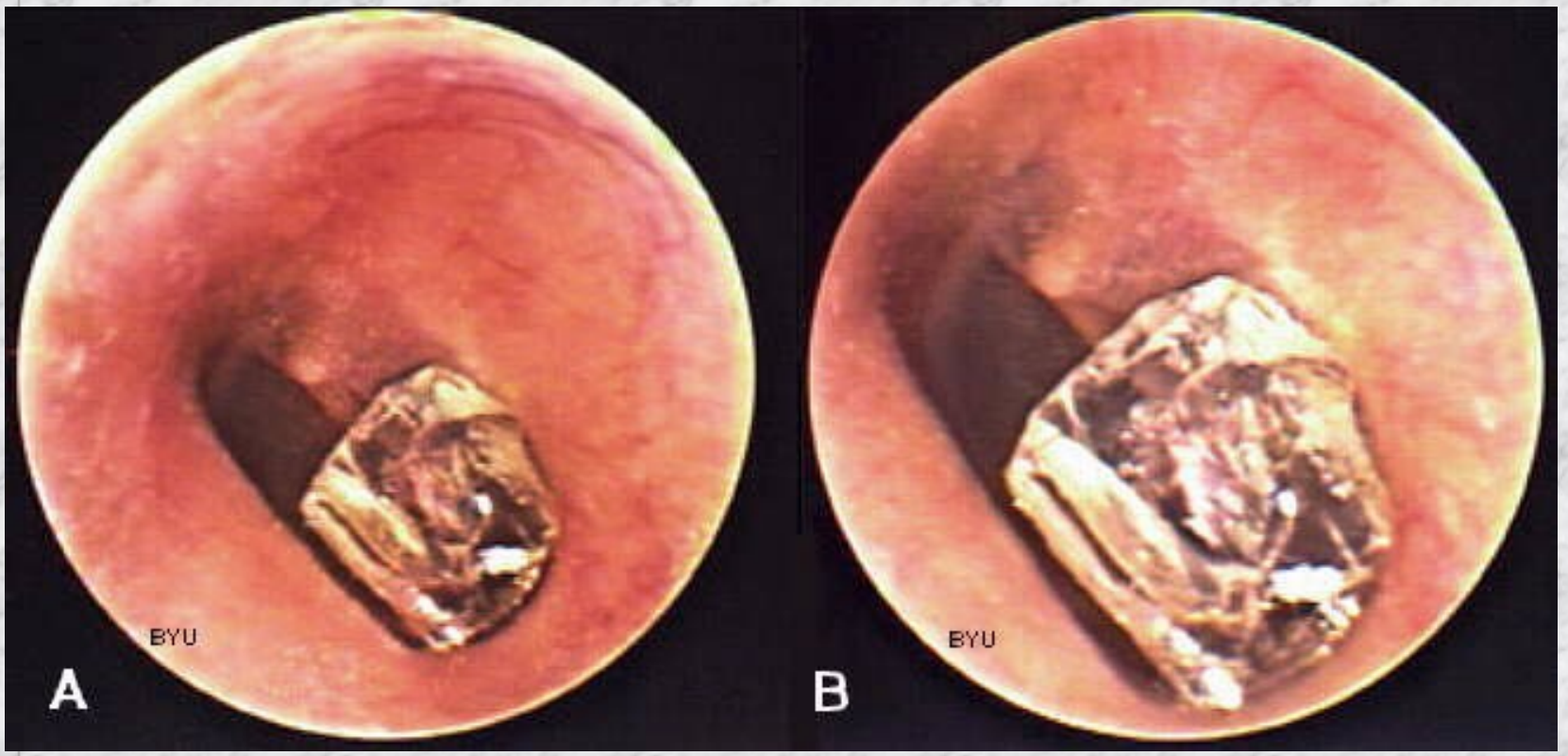
CERUMEN

Excessive Cerumen:

- **If you can't see at least half the TM, then cleaning is recommended**
- **If the tympanogram is normal, can proceed with hearing test and schedule or refer for irrigation**

Photo's courtesy of Dr. Roy F. Sullivan, Ph.D.

Foreign Bodies:

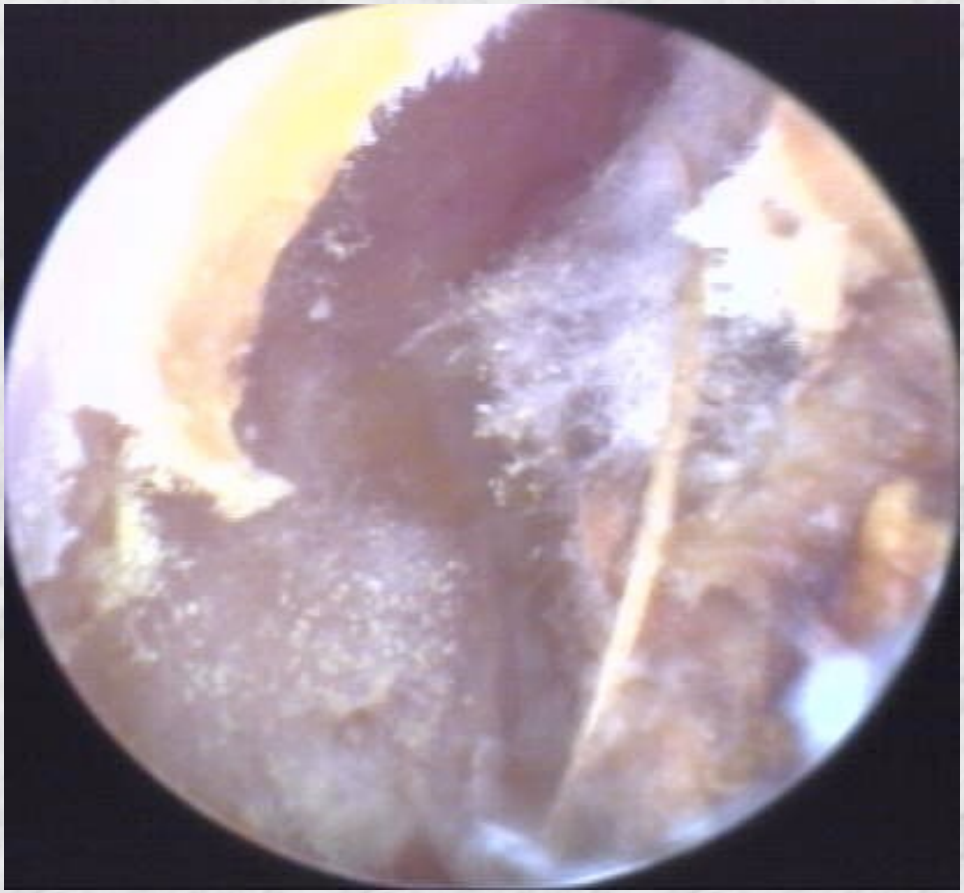


Photo's courtesy of Dr. Roy F. Sullivan, Ph.D.

Insect On Ear Canal Wall

Photo's courtesy of Dr. Roy F. Sullivan, Ph.D.

Cotton Swab Residue



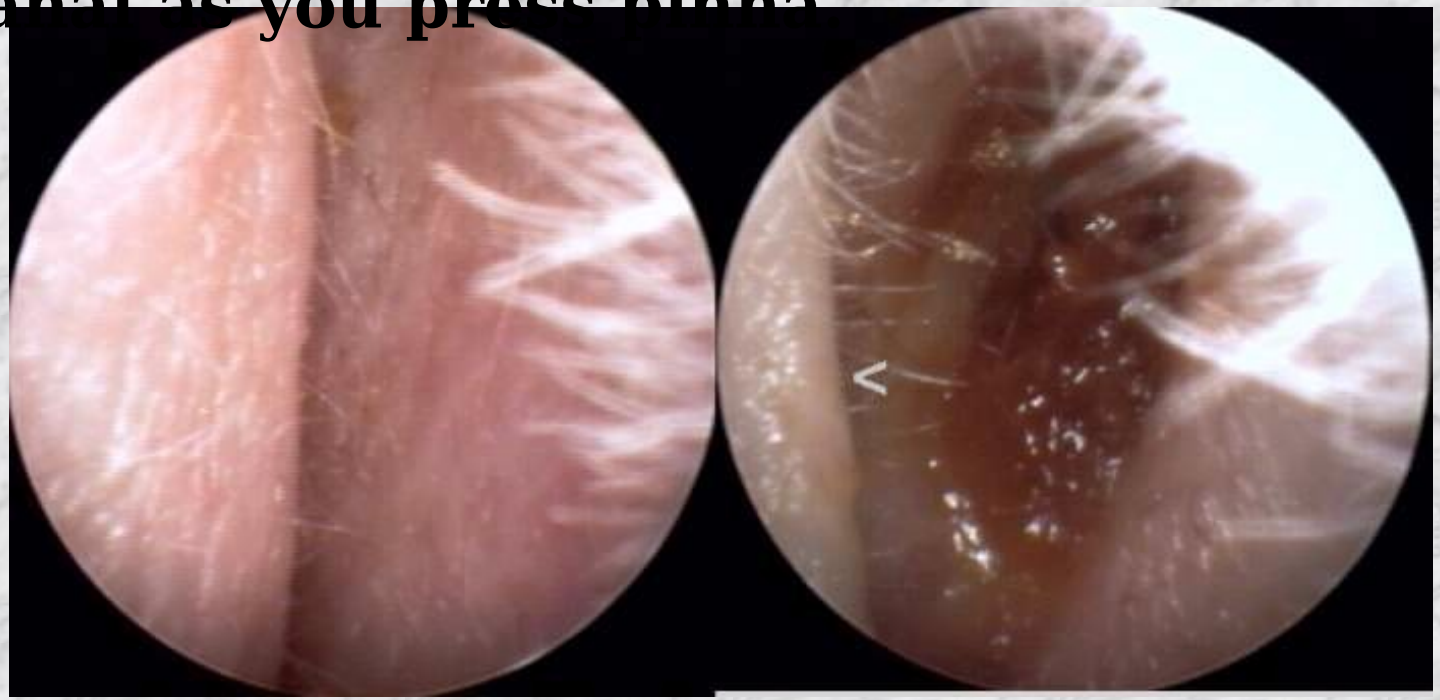
Photo's courtesy of Dr. Roy F. Sullivan, Ph.D.

Earplug, 1 Year After Rock Concert…

Photo's courtesy of Dr. Roy F. Sullivan, Ph.D.

Collapsing Canals:

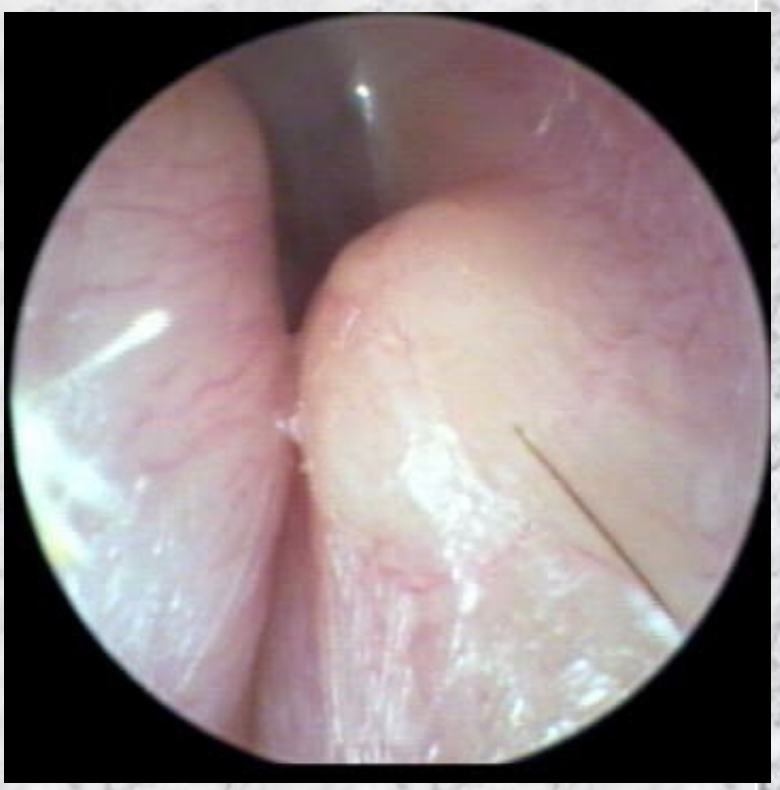
Fairly common. When patients display a "flat" loss, must rule this out by visualizing ear canal as you press pinna



Photo's courtesy of Dr. Roy F. Sullivan, Ph.D.

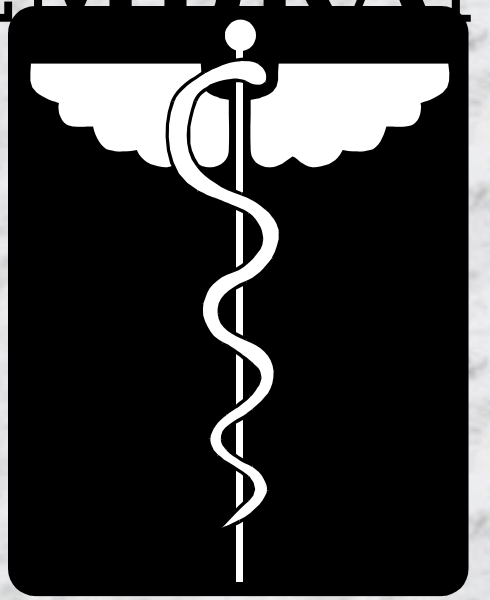
Exostoses:

- Bony growth in canal wall
- Often associated with cold water swimming
- Benign, will not affect the hearing test unless ear canal is fully occluded
- Interferes with



Photo's courtesy of Dr. Roy F. Sullivan, Ph.D.

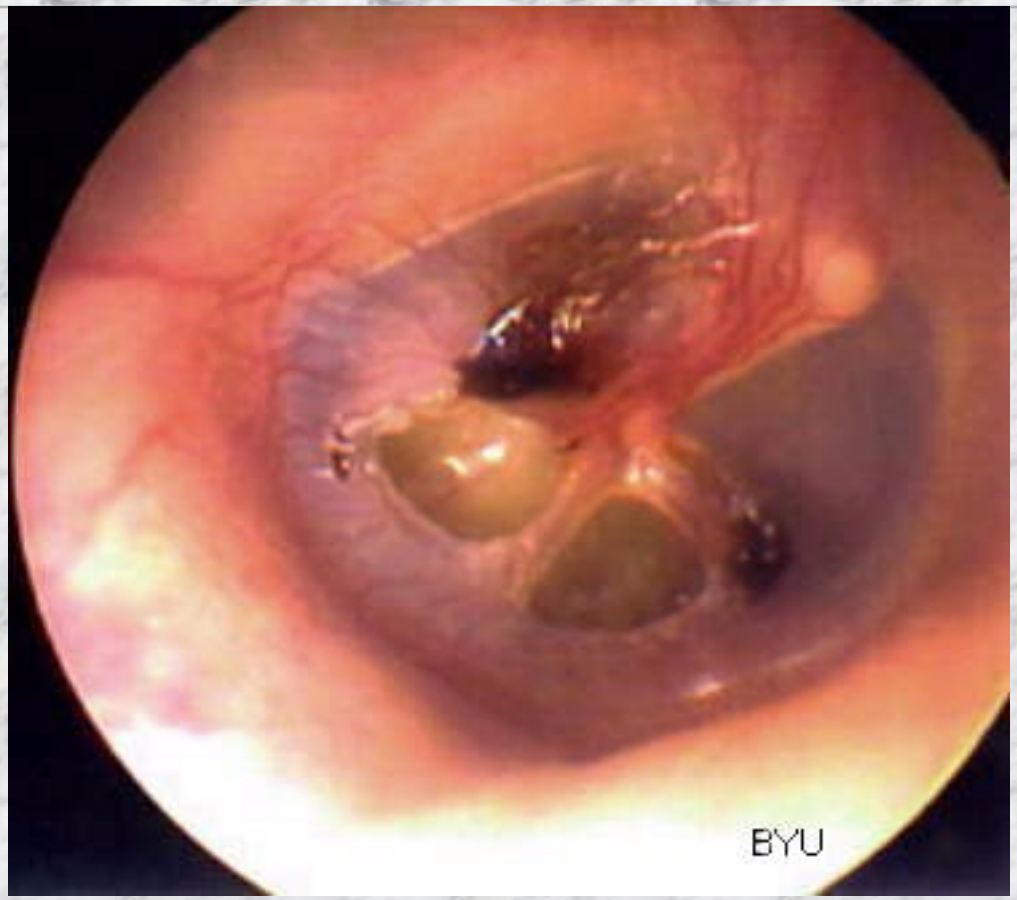
ABNORMAL FINDINGS: TYMPANIC MEMBRANE



TM Perforations:

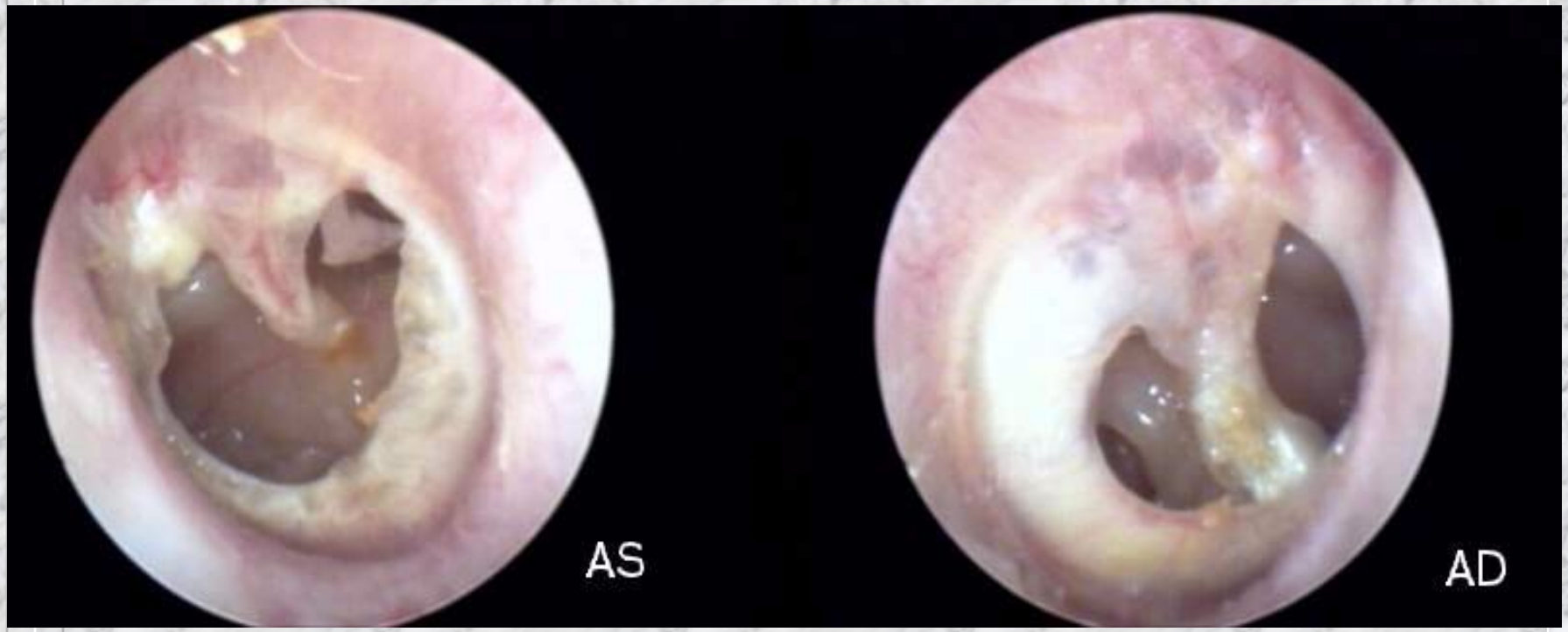
Photo's courtesy of Dr. Roy F. Sullivan, Ph.D.

Perforation’s (cont.)



Photo’s courtesy of Dr. Roy F. Sullivan, Ph.D.

Perforations #3



Photo's courtesy of Dr. Roy F. Sullivan, Ph.D.

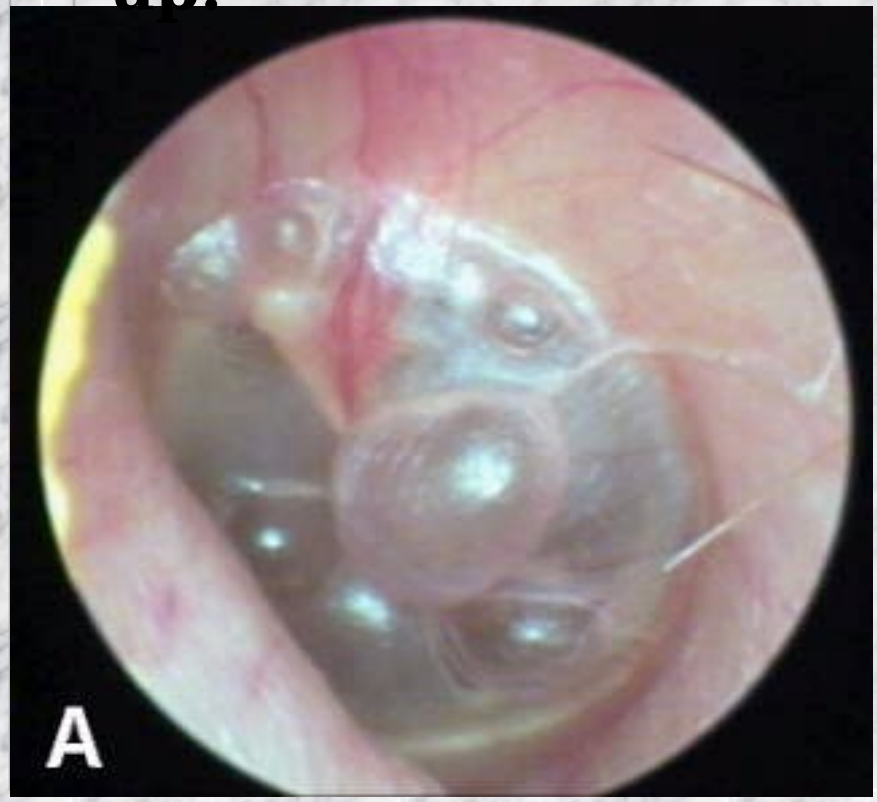
Retracted Eardrum

- **Suggests Eustachian Tube Dysfunction (negative middle ear pressure)**
- **Type C Tympanogram**
- **Middle ear ossicles may stand out boldly as TM is drawn back over them**
- **May note increase in vascularity of the TM blood vessels**
- **Valsalva maneuver may help inflate middle ear and return TM to its normal position and mobility**

Photo's courtesy of Dr. Roy F. Sullivan, Ph.D.

Bulging Eardrum

- Occurs when TM is forced outward by excessive middle ear pressure or fluid build-up.



- Landmarks may be absent
- In acute cases, TM may be
  fiery red in color
- May accompany patient sneeze if TM is excessively mobile and/or eustachian tube patulous (permanently open)
- Tympanogram shows

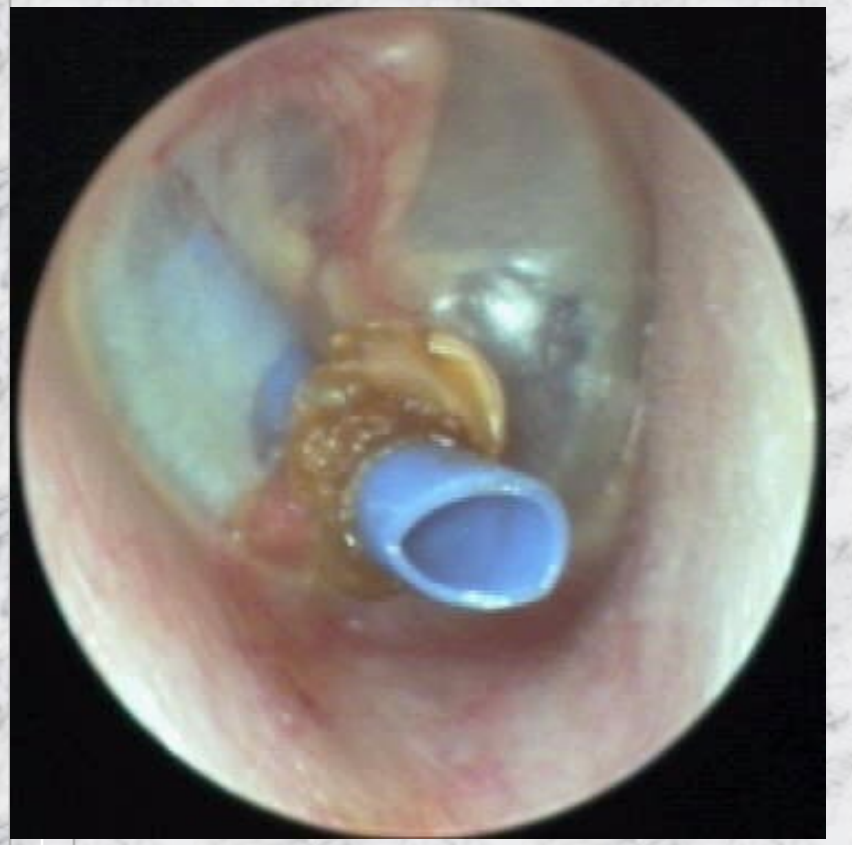
Otitis Media

- **Also known as middle ear effusion, or serous otitis media**
- **Results from eustachian tube dysfunction**
- **If fluid becomes infected, may develop acute otitis media**

Photo's courtesy of Dr. Roy F. Sullivan, Ph.D.

- **May continued to**

Ventilation Tubes



- **Surgically implanted in TM to ventilate middle ear cavity when eustachian tubes chronically non-functional**
- **Used in adults and children; usually stay in 6 to 9 months**
- **Color and type vary, may be plastic or metal**
- **May need earplugs as water precaution**
- **Do not disturb**

Photo's courtesy of Dr. Roy J. Sullivan, Ph.D.

Cholesteatoma

- **Cystic mass, usually grows from a marginal perforation in the superior region of TM (pars flaccida)**
- **May grow quickly, can be erosive and potentially life threatening due to proximity to meninges via**

Tympanosclerosis

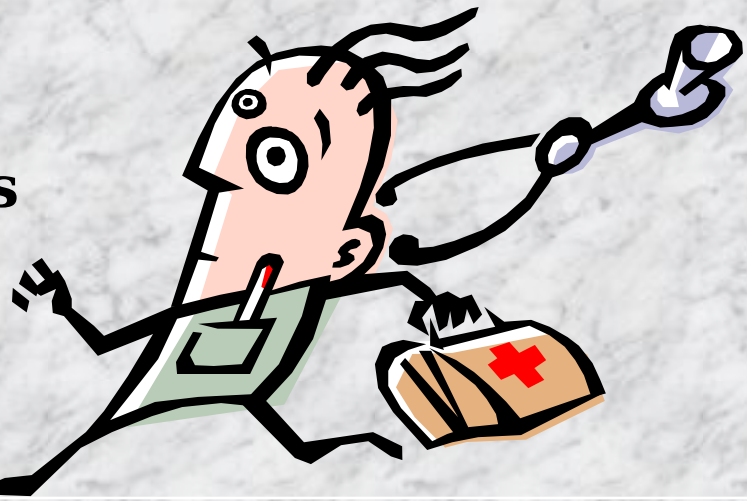
- **Chalky or white growth on TM (think of *sclera*, white portion of eye)**
- **Caused by chronic TM scarring and infections**
  - **Usually benign**
  - **May cause Type As tympanogram,**

When to do an Otoscopic Examination

- Before a reference audiogram
- Before testing, if patient complains of an ENT problem
- Before tympanometry
- Before earplug fitting
- When an STS is discovered
- When a low frequency or flat hearing loss is detected

Referral to Medical Officer when…

- Pain or discomfort is reported
- Drainage is visible
- Perforation is visible
- Tympanic membrane is bulging
- Ear canal is blocked by cerumen or foreign body
- Complaint of sudden hearing loss with tinnitus and/or dizziness (STAT!)
- When in doubt



QUESTIONS???